ISSN 1023-2842
中山管理評論　2023 年十二月號
第三十一卷第四期　p.669-704
DOI: 10.6160/SYSMR.202312_31(4).0003

資訊科技員工的完美主義對正負工作成果的影響

Effects of Perfectionism on Positive and Negative Job Outcomes among Information Technology Employees

王維聰 *Wei-Tsong Wang*
國立成功大學工業與資訊管理學系
Department of Industrial and Information Management,
National Cheng Kung University

林櫻蓮* *Ying-Lien Lin*
國立成功大學工業與資訊管理學系
Department of Industrial and Information Management,
National Cheng Kung University

本文引用格式建議：王維聰、林櫻蓮，2023，「資訊科技員工的完美主義對正負工作成果的影響」，中山管理評論，31 卷 4 期：669~704。DOI: 10.6160/SYSMR.202312_31(4).0003。

Suggested Citation: Wang, W. T. and Lin, Y. L., 2023, "Effects of Perfectionism on Positive and Negative Job Outcomes among Information Technology Employees," **Sun Yat-sen Management Review**, Vol. 31, No. 4, 669-704. DOI: 10.6160/SYSMR.202312_31(4).0003.

---

* Corresponding author: Ying-Lien Lin，Postal address: No.1, University Road, Tainan City 701, Taiwan，Tel: 06-2757575 ext. 53120#109 / Fax: 06-2362162，Email: r38021019@gs.ncku.edu.tw. We want to thank the editor and two anonymous reviewers for their valuable comments and suggestions. We also gratefully acknowledge participants for their time and interest in this study; similarly, we thank the helpful comments of Dr. Shih-Yu Cheng on the early draft of the survey questionnaire of this paper. This research was funded by the Ministry of Science and Technology of Taiwan (grant number: MOST 109-2410-H-006-043-MY2

摘要

本研究旨在驗證資訊科技員工的完美主義與積極和消極工作成果之關聯。在專業服務公司中，資訊科技員工的內在和外在動機對於決定組織的成功至關重要。本研究從自我決定理論的角度探討資訊科技員工的完美主義、工作滿意度、組織承諾和健康問題之間的關聯性。本研究收到 489 份有效問卷，採用階層線性模型巢套式方法進行關聯性分析。結果表明，完美主義與工作滿意度、組織承諾和健康問題顯著正相關。健康問題有負向的調節效果，顯著的減弱了完美主義和工作滿意度以及完美主義和組織承諾之間的正相關。本研究的發現可為專業服務公司的管理階層提供資訊科技人力規劃之參考，留住寶貴之資訊科技員工將能為客戶提供更好的專業服務質量。

關鍵詞：工作滿意度、健康問題、完美主義、組織承諾、專業服務公司

Abstract

This paper aimed to examine perfectionism in information technology (IT) employees in terms of its effects on their positive and negative sense of well-being. In professional service firms, the intrinsic and extrinsic motivations of IT employees have become increasingly critical in determining organizational success. This study examines the relationship between perfectionism, job satisfaction, organizational commitment, and health problems among employees from the self-determination theory perspective. A total of 489 replies were used for the analysis of hierarchical linear model (HLM) techniques. The results revealed that perfectionism is significantly positively correlated with job satisfaction, organizational commitment, and health problems. Health problems negatively moderate the relationship between perfectionism and job satisfaction and between perfectionism and organizational commitment. The findings will provide references for professional service firm managers to retain valuable staff and improve service quality.

Keywords: Job Satisfaction, Health Problems, Perfectionism, Organizational Commitment, Professional Service Firms

1. INTRODUCTION

In the age of information technology (IT), the intrinsic and extrinsic motivations of IT employees may influence the successful implementation of technological service quality that has long been a crucial consideration in the IT industry (e.g., Lin et al., 2013; Toskin & McCarthy, 2021). Global commercial activities are becoming more dynamic and complex, in turn forcing all business activities to be carried out using various sophisticated IT devices and applications to ensure the security of all transaction-related data. In response to this, there is always a shortage of IT employees in professional service sectors due to a high turnover rate and difficulties related to obtaining skilled professionals (Toskin & McCarthy, 2021; Suárez-Albanchez et al., 2021). Particularly, in certified public accountant (CPA) firms, IT employees rely heavily upon information systems (IS) to execute their professional tasks under given time pressure (Hu et al., 2018). Additionally, they have to cope with complex accounting IS for their clients (i.e., enterprise resource planning systems, ERP), assist their clients in creating appropriate operational systems, or provide them with technological support. In such cases, individual characteristics (i.e., perfectionism) and behavior (i.e., job satisfaction and organizational commitment) play a vital role in the professional service sector that can be regarded as important factors influencing the quality of the professional service provided (e.g., Dobni et al., 1997; Tomo et al., 2020). Rapidly changing global business environments cause IT employees to continually encounter changes due to social, legal, political, and economic developments. These conditions can exacerbate their health problems, decrease their well-being, and even threaten the overall service quality of their firms (Hsieh & Wang, 2012). Currently, this issue has attracted the interest of researchers and practitioners in the professional service field.

Perceptions of poor service quality can seriously affect the reputations and business value of professional service firms. Levin et al. (2019) pointed out that higher service quality is associated with employees' perceived morale, accountability, rewards, satisfaction, and commitment. It can thus be reasonably inferred that if IT employees frequently have tight deadlines or often deal with unexpected contingent events that reflect a lack of job autonomy, competence, and relatedness, they may feel isolated and depressed when attempting to complete their assigned tasks. These

situations are likely to negatively affect their work-related outcomes; in contrast, a positive result suggests they obtain adequate support from supervisors or co-workers. IT employees often have to cope with various work situations in professional service firms, such as significant knowledge requirements, shift work schedules, a multi-project-based team, and a deadline-driven work environment. Therefore, a high level of turnover rate, low job satisfaction, and intention to leave the profession and enter another professional service sector are not beneficial to a firm's accumulation of intellectual capital. A better understanding of the work-related motivation and behavior among IT employees is important for professional service industry managers. It will help them provide better service quality for clients/customers while retaining valuable staff.

There are three primary reasons for adopting the self-determination theory (SDT) as the theoretical foundation of this study. First, SDT is effective in terms of examining the effects of individual intrinsic/autonomous and extrinsic/external motivations on the work-related attitudes and/or behavior of IT employees (Gagné & Deci, 2005; Lin et al., 2013; Hu et al., 2019; Ocampo et al., 2020; Toskin & McCarthy, 2021; Van der Vaart, 2021). IT employees are high-density knowledge workers with career insight. They have shared psychological needs and work values/ motivations that determine their organizational commitment, especially in a temporary project/organization (Zheng et al., 2020). Second, there are intensive work requirements (i.e., a given timeframe based on outcome control) that must be met in order to deliver a high level of service quality. IT employees have to consistently engage in extra-role behavior that is strongly related to their motivation and the concept of control mechanisms and rewards in collaborative IT projects (e.g., Ryan & Deci, 2000; Hsu et al., 2017). Third, based on the premise of intrinsic/autonomous and extrinsic/controlled motivations in the SDT, filling research gaps is necessary for the existing research on perfectionism in the IT field (e.g., Chang et al., 2016; Ocampo et al., 2020). Thus, it is considered effective to adopt the SDT to interpret performance with perfectionism among IT employees by developing a theoretical framework based on the main intrinsic/autonomous and extrinsic/external motivation concepts (i.e., challenging work or achievement, increasing work responsibilities) (e.g., Gagné & Deci, 2005; Lin et al., 2013). Some researchers have examined how job satisfaction and health problems are associated with work environments or with individuals

communicate with clients/customers, colleagues, and supervisors (Van den Broeck et al., 2014; Gomez-Baya & Lucia-Casademunt, 2018). For example, Munro (2008) suggested that a lack of challenging work may increase employee perceptions of personal dissatisfaction, leading to a lack of commitment and failure to offer the best service quality (Walsh, 2016). Several studies have provided valuable insights by linking such issues with intrinsic and extrinsic motivations related to employee job outcomes (Flett et al., 1995; Benevene et al., 2018; Braun et al., 2020). However, there appears to be a lack of sufficient empirical evidence explaining the impact of perfectionism on the part of IT employees on their individual health problems and sense of well-being in the professional service sector based on the SDT. It is critical and valuable to IT project literature to understand whether perfectionism among IT employees has positive or negative correlations with job outcomes, including organizational commitment, job satisfaction, and health problems. Hence, more studies are needed to investigate whether IT employees' health problems (i.e., mental and physical) may directly affect job satisfaction and organizational commitment. Additionally, health issues may moderate the effects of perfectionism on job satisfaction and organizational commitment (e.g., Molnar et al., 2006; Molnar et al., 2012).

Research indicates that perfectionism is a component of achievement motivation (i.e., do things right) and self-actualization tendencies based on Maslow's viewpoint (Parker, 1997; Pawlowski et al., 2007; França et al., 2020), inducing an individual to derive pleasure from engaging in challenging but attainable IT project goals. However, the existing literature results on perfectionism are not consistent. Researchers have stated that high levels of positive perfectionism may benefit task performance and lead to positive individual job outcomes (Flett et al., 1995). IT employees with fewer health problems, high levels of job satisfaction, and strong levels of organizational commitment are likely to commit to providing high service quality to clients/customers in an organization. Thus, this study adopts SDT to identify the key indicators of individual perfectionism and its relationships in the professional service firms, and therefore, the research question (RQ) is as follows.

RQ: What is the relationship between perfectionism, job satisfaction, organizational commitment, and health problems in professional service settings?

Existing studies that specifically discuss perfectionism among IT employees,

especially in the professional services sector, are scarce. Most IT employees are responsible for various complex tasks, including verifying whether the professional software used by the clients (i.e., enterprise resource planning, ERP) can accurately generate and present electronic business transaction records, analyzing the suitability of various types of IS (e.g., ERP) for their firms and to those of their firms' clients, guiding end-users to continue the use of critical IS packages, and solving various IT-related problems for their firms. Therefore, the daily workload of IT employees is heavy and stressful, which may lead to various undesirable consequences, in turn inducing technostress and skill obsolescence (e.g., Brooks & Califf, 2017; Suh & Lee, 2017; Harden et al., 2018; Tarafdar et al., 2019). Adopting a motivational viewpoint (i.e., perfectionism) is thus useful to evaluate the job satisfaction or organizational commitment of IT employees. Consequently, the proposed theoretical model used in this study is significant because the findings may provide managers with insights and may be used as a guidance tool for project planning and implementation, thus improving professional service program designs and job assignments and creating healthier workplace environments.

2. THEORY AND HYPOTHESES DEVELOPMENT

Knowledge-intensive organizations (i.e., professional service firms) often rely heavily on the commitment of their employees to survive in a rapidly changing business environment (Von Nordenflycht, 2010; Yalabik et al., 2017; Zheng et al., 2020). Currently, the IT industry is growing and creating a tremendous amount of job opportunities for IT professionals. Thus, helping firms retain highly talented IT employees is an important issue related to the success of firms (Pflügler et al., 2018; Wang et al., 2019). Job characteristics and specific factors, including technostress and social pressure, make it necessary for IT professionals to continuously maintain and advance their professional capabilities to cope with work-related changes (Ahmed et al., 2017; Brooks & Califf, 2017). França et al. (2020) and Tarafdar et al. (2019) further indicated that specific IT-related experiences/practices could drive motivation in IT professionals and possibly generate various positive consequences (i.e., greater effectiveness, satisfaction, and commitment) at work. Ryan & Deci (2000) argue that the SDT can offer useful heuristics for considering the effects of personal motivation

on job outcomes. The SDT is useful to explain IT employees' well-being and health problems by emphasizing the effects of autonomous and controlled motivations on different individual behaviors. Essentially, people have essential psychological needs in work-related contexts (i.e., feeling of autonomy, competence, and relatedness) to achieve optimal individual value and address intrinsic motivations, both of which improve the level of job satisfaction in IT employees (Gillet et al., 2016; Hu et al., 2019; Toskin & McCarthy, 2021), as well as their job performance (Moon et al., 2019).

Professional service firms tend to make use of sophisticated performance evaluation systems (i.e., peer review systems) to evaluate project performance. Therefore, IT employees in such firms may be forced to adopt perfectionistic goals and concerns (i.e., individual standards, competence, and concerns over mistakes) associated with autonomous or controlled motivation to complete their tasks (Harvey et al., 2015). Mouratidis & Michou (2011) also argue that perfectionism is correlated to both autonomous and controlled motivation. Thus, the SDT can serve as a comprehensive framework to understand perfectionistic beliefs among individuals related to their tasks. Ryan & Deci (2000) argued that people might be better motivated by their autonomous motivation to pursue individual goals, energy, vitality, and happiness at work when their psychological needs for autonomy, competence, and relatedness are satisfied. In contrast, when individuals are primarily motivated by controlled motivation in the workplace, they may engage in excessive work to increase their self-esteem, reduce their intrinsic feelings of anxiety or stress, or strive for perfection (Ocampo et al., 2020). Therefore, it can be inferred that both autonomous and controlled motivations are significantly associated with individual well-being and health problems (i.e., exhaustion) (Mouratidis & Michou, 2011; Van den Broeck et al., 2011). Lorente Prieto et al. (2008) argued that perfectionism is closely associated with personal demands and called for more research on this topic. Consequently, perceived stress has been linked to autonomous motivation, while perfectionism reflects a controlled motivation perspective (Garinger et al., 2018).

The SDT is a human motivation theory that helps identify different types of motivations (i.e., reasons, expectations, goals, or values) based on a specific action (Lin et al., 2013; Toskin & McCarthy, 2021). It offers a useful framework for understanding theoretical and practical individual intrinsic and extrinsic motivations in the workplace. Various types of motivation may substantially impact job outcomes,

attitudes, and behavior (e.g., Wang et al., 2015; Ocampo et al., 2020). Intrinsic (i.e., autonomous) motivation refers to when an individual is involved in an activity that feels interesting, in turn deriving spontaneous satisfaction from the activity itself. In contrast, extrinsic motivation (i.e., controlled) does not come from the consequences of the activity itself, where the factors affecting satisfaction include tangible rewards (i.e., money) and verbal rewards (i.e., praise, feedback) (Ryan & Deci, 2000; Gagné & Deci, 2005). Therefore, a high level of intrinsic motivation (i.e., a high level of self-determination regarding a behavior) is crucial for encouraging IT employees to autonomously perform a service task. Prior research suggests that autonomous motivation is positively associated with individuals' work performance, job satisfaction, and degree of organizational commitment (e.g., Gagné & Deci, 2005; Gillet et al., 2016; Ahmed et al., 2017; Ren et al., 2021). In contrast, individuals are likely to exhibit reasonable in-role behavior when their level of self-determination regarding the focal behavior is low because they perceive pressure or difficulty related to transforming some behaviors to reflect their own interests (i.e., extrinsic motivation). Miquelon et al. (2005) indicated that perceived pressure may result in compulsivity and is positively related to perfectionism based on controlled motivation. Previous research has examined the relationship between individual motivation, job performance, and other factors based on the SDT (Sheldon & Prentice, 2019). However, it is relatively unknown, especially in terms of theoretical and empirical development in the professional service sector, how perfectionism is related to the development of the attitudes and behaviors of IT employees.

Consequently, as shown in Table 1, this study summarizes the important theoretical views adopted in the relevant prior studies and the associated findings related to job performance in those previous studies. Previous researchers have applied various theoretical perspectives to assess job performance in the IT field. Additionally, IT professionals' job performance tends to be mainly motivated by the job characteristics (i.e., control, technostress), psychological or motivational processes, and competencies. Therefore, we conclude that the SDT may be adequate to investigate the motivation of IT professionals based on the teamwork settings characteristic of IT projects (Lin et al., 2013; Hu et al., 2019; Toskin & McCarthy, 2021; Van der Vaart, 2021). This study focuses on perfectionism among IT professionals due to the lack of information about this topic in an IT project context.

Table 1. Overview of prior studies of IT employees' performance

Authors	Theory	Primary finding	Consistent results	Research gaps
Ahmed et al., 2017	Two-factor theory	The motivations of IT employees primarily consist of the job characteristics, the perceptions of responsibility, and supervisors' encouragement.	Research has examined the effects of motivation, such as supervision, needs related to cognitive growth, and psychological processes on job satisfaction.	IT professionals' attitudes toward motivation are a complicated factor, where using a tailored motivation theory may be appropriate for managers in practice.
Akman & Turhan, 2018	Expectancy theory	Individual competencies (i.e., communication, leadership, and time management) play an important role in successfully developing software projects.	Previous studies have examined a variety of competencies among IT employees.	This work context involves various tasks and has high job demands on efficiency and quality of performance. However, the literature does not provide satisfactory evidence regarding the characteristics and competencies of software developers.
Brooks & Califf, 2017	Job characteristics theory	Social media-induced technostress is negatively associated with job performance, while job characteristics negatively moderate their relationship.	Technostress is a critical determinant affecting an employee's performance and productivity that has been treated in different technological domains.	The underlying reasons for social media-induced technostress may link to lowering the job performance of IT professionals, which is unaddressed and treated in the current business environment.
Chang et al., 2016	Social cognitive theory	Healthy/unhealthy perfectionism is positively related to innovative behavior/job burnout among IT employees, respectively. At the same time, team workplace friendship is an effective moderator.	Research suggests that perfectionism reduces individual innovativeness and creativity.	Individual perfectionism has a significant influence on innovative behavior and burnout in R&D semiconductor teams.
Harden et al., 2018	Social exchange theory	The fairness of the rewards, skill obsolescence, and work overload directly influence IT employees' organizational commitment.	Skilled IT professionals play important roles influencing the creation of organizational value and the ability to achieve strategic goals.	The skill obsolescence of IT professionals how to affects their organizational commitment and turnover intention that is under- researched.

Authors	Theory	Primary finding	Consistent results	Research gaps
Hsu et al., 2017	Control theory	In-role behavior strongly influences project performance. Additionally, formal and informal control of in-role behavior is substitutable; in contrast, it is complementary in extra-role behavior.	Most project control studies focused on the degree to which controlees can effectively carry out their assignments.	The effects of control mechanisms on project performance remain unknown in the teamwork context.
Hu et al., 2019	SDT	Work engagement moderates the relationship between perceived high-performance work systems and affective commitment.	High-performance work systems (HPWS) have a positive relationship with employees' work-related outcomes.	Identifying the diverse individual differences, namely unique attribution style, work motivation, skills, and experience, is important to the effects of HPWS on employees of IT companies.
Lee & Keil, 2018	Goal orientation theory; prospect theory	Using criticism-based and relative appraisals to convey performance feedback is the best way to escalate an individual's commitment to a project task. At the same time, goal- oriented appraisals and avoidance of goal-oriented appraisals are important mediators.	IS research suggests that performance appraisals provide an opportunity for supervisors to review subordinates' performance and provide feedback to individuals.	The performance appraisals of the task-level escalation need more studies to evaluate the similarities and differences of this issue in IT project management environments.
Lin et al., 2013	Motivation theory; SDT; SCT	Job involvement and career insight affect the extrinsic and intrinsic motivations of IS developers. In addition, learning self-efficacy influences learning intention while strengthening the relationship between intrinsic motivation and learning intention.	A user-designer communications gap can cause problems during IS development in a cooperative team.	Specific factors (e.g., interpersonal, communication, management, and organizational skills) may affect system developers' behavior related to learning business skills.
Luftman et al., 2017	Dynamic capabilities theory	Promoting enterprise-level business- IT alignment can use six factors to achieve better performance: value analytics, dynamic IT scoping, IT skills development, affiliation/ partnership nature, IT governance, and communications.	Most alignment studies regard alignment as a static relationship (i.e., organizational infrastructure, business strategy, IT strategy, and IT infrastructure) in their research models.	Using a dynamic capabilities theory will aid in examining IT-business alignment and consequences.

Authors	Theory	Primary finding	Consistent results	Research gaps
Suárez-Albanchez et al., 2021	Stress theory	Occupational health and safety policies have a significant effect on employees' work and organizational commitment in the IT consultancy sector.	Researchers have analyzed the positive effects of employee health and safety on turnover intention, focusing on high-risk professional sectors.	Occupational health and safety at work are related to the organizational commitment of IT professionals that rarely been explored in the IT consultancy context or the COVID-19 pandemic environment.
Suh & Lee, 2017	Job characteristics theory	Technology and job characteristics together explain technostress. Additionally, teleworker strain results from work overload, invasion of privacy, and role ambiguity.	Previous studies have examined the effects of technology- induced stress and identified that teleworkers spend different degrees of their scheduled time on their work.	Integrating the technostress model and the job characteristics theory would help explain teleworkers' job satisfaction.
Toskin & McCarthy, 2019	SDT	Intrinsic, leisure, extrinsic, and social rewards are important to the development of the work values of IT professionals.	The critical drivers behind turnover intention have been identified in previous studies.	IT professionals' specific job characteristics, personal values, and job satisfaction are not yet linked together based on motivation theories, particularly in the case of IT professionals in the CPA sector.
Van der Vaart, 2021	JD-R theory; SDT	Job resources (autonomy, social support, coaching, and development opportunities) are significantly related to performance (task, contextual, and counterproductive work behavior).	The Individual Work Performance Questionnaire (IWPQ) is a scientifically rigorous instrument applied in various sectors using a confirmatory factor analysis (CFA) framework.	To address the research gaps in a sample of IT professionals in South Africa, an exploratory structural equation approach was adopted to explore psychometric properties using the IWPQ instrument.

Note: JD-R = Job demands-resources; SDT = self-determination theory; TAM = technology acceptance model.

Source: The current study

2.1 The Relationships among Perfectionism, Health Problems, Job Satisfaction, and Organizational Commitment

Hewitt et al. (1996) regarded perfectionism as an individual tendency associated with individual achievement while the individual retains the ability to be satisfied with his/her performance. The concept of perfectionism is consistent with the notion that excessive self-criticism is defined by high personal standards, doubts about the effectiveness of one's actions, concerns about meeting social expectations (i.e., stakeholders), and an excessive focus on organization and neatness (Frost et al.,1990). In this study, *perfectionism* is defined as an individual's tendency to set unrealistically high expectations about his/her performance based on the concept of achievement motivation (Li et al., 2015). *Job satisfaction* is defined as a positive state of emotion related to one's job experience or the degree to which individuals like or dislikes their jobs, including intrinsic, extrinsic, and employee relationships (Warr & Inceoglu, 2012; Benevene et al., 2018). *Health problems* refer to a broad range of physical or psychological symptoms taking place in individuals in the workplace (Andrea et al., 2004). Molnar et al. (2006) and Molnar et al. (2012) indicated that perfectionism is related to mental health, while socially prescribed perfectionism and self-oriented perfectionism are related to physical health, which is relatively unknown. Organizational commitment is defined as "the employee's emotional attachment to, identification with, and involvement in the organization. Employees with a strong affective commitment continue their employment with the organization because they want to do so" (Meyer & Allen, 1991).

People with high levels of perfectionism are more likely to be stressed because they tend to develop unrealistic self-expectations, leading to negative consequences. Several studies have shown that perfectionism is negatively related to health problems (Flett et al., 1995), satisfaction (Stoeber & Damian, 2016), and long-term commitment (Stoeber, 2012). On the other hand, some studies have revealed that perfectionism is positively related to job satisfaction (Burke, 1999; Wittenberg & Norcross, 2001) and health problems (Træen et al., 2019). From the IT employees' perspective, few studies have examined the effects of perfectionism on health problems, job satisfaction, and organizational commitment, thus inspiring this study. Some perfectionism features may positively encourage IT employees to attempt to

reach their professional goals and lead to achievement motivation (Li et al., 2015), which perhaps in turn meets their psychological needs. Additionally, excessive perfectionism will lead people to be workaholics, which is not good for their health. Accordingly, the following hypotheses are proposed:

H1a: Perfectionism is positively related to IT employees' job satisfaction.

H1b: Perfectionism is positively related to IT employees' health problems.

H1c: Perfectionism is positively related to IT employees' organizational commitment.

2.2 The Moderating Effects of Health Problems

IT employees usually work together on various project tasks, within divisions, or with colleagues for short time periods (Akman & Turhan, 2018). This work situation may make it difficult to mitigate their levels of daily pressure, inducing health problems that reduce job satisfaction and organizational commitment. Previous research has suggested that mental health problems are associated with individual motivation (Westgaard & Winkel, 2011), while health problems may influence individual work-related outcomes (Maslach et al., 2001; Keramat et al., 2020). It is thus reasonable to assume that the level of success of an IT project may be compromised when most members of the IT project team are suffering from significant health problems. Additionally, at the individual level, IT professionals are constantly undergoing dramatic changes in their work environments, which can cause high levels of technostress and, in turn, lead to serious health problems (e.g., Sigahi et al., 2021; Suárez-Albanchez et al., 2021). Nevertheless, few studies have extended the group-level concept of health problems (related to IT employee motivation (i.e., perfectionism) that may interfere with their work performance. Thus, the extent to which actual aggregating health problems (at the group level) negatively moderate the relationship between individual perceived job satisfaction and organizational commitment remains unknown. Chang et al. (2016) verified that team workplace friendships positively strengthen the positive effect of healthy perfectionism on innovative behavior. In such cases, IT members' health problems may correspond to individual attitudes and behavior, in turn interfering with

interpersonal interaction and reducing their perceived workplace well-being (i.e., job satisfaction and organizational commitment). When IT employees frequently set up a high level of job goals in different tasks, it is reasonable to believe that health problems may disrupt positive individual motivations and attitudes or behavior. Accordingly, the following hypotheses are proposed:

H2a: IT employees' health problems negatively moderate the relationship between their degree of perfectionism and job satisfaction.

H2b: IT employees' health problems negatively moderate the relationship between their degree of perfectionism and organizational commitment.

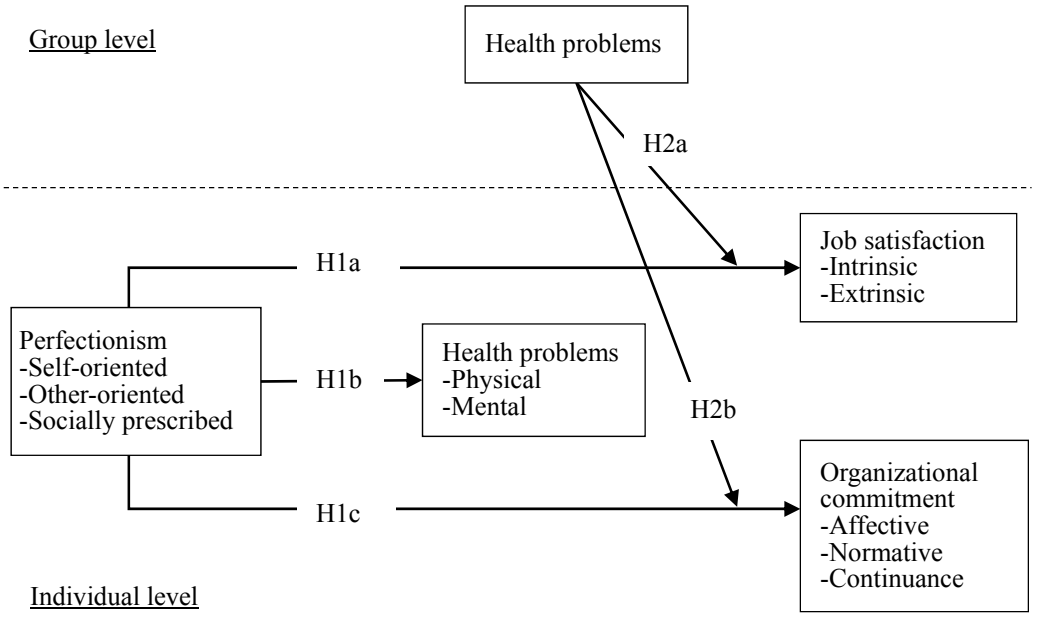

Figure 1. The research framework

Source: The current study

3. METHODOLOGY

3.1 Data Collection

During the data collection process, IT employees voluntarily filled out a questionnaire in the present study. Firms were selected that were registered with the Taiwan Certified Public Accountants Association and the Taiwan Ministry of Economic Affairs to increase data reliability. First, we pre-tested 40 IT employees from a professional service firm to ensure the questionnaire's comprehensiveness and reliability. Additionally, part-time IT employees and general administration and staff from other departments were excluded to avoid bias. We asked the IT employees of CPA firms to participate in the survey. Before the questionnaires were distributed, the consent of a manager and/or a secretary of the CPA firms was obtained. Instructions were given on how to complete the questionnaires. Simultaneously, a cover letter emphasized that the confidentiality of the participants would be ensured and that they would not be named or identified in any way.

The sampling procedure of this study is as follows: The authors contacted the managers of the department of human resources of a number of accounting firms via phone calls or e-mails to explain the details of the research project and invited them to participate in the research. Once they agreed to accept the invitation, we sent the hard copies of the questionnaire to them and requested them to randomly distribute to the IT employees in their firms. A total of 600 copies of the questionnaire were sent by mail to the participating firms agreeing to participate in the study. Finally, a total of 489 (75.12%) valid questionnaires were obtained. The participants' demographic information indicated that 380 of the participants (77.71%) were under 29 years old; 437 of them (89.36%) were single; 473 of them (96.73%) had a bachelor's degree or higher, and 326 of them (66.67%) had been working in their respective firms for one to three years.

3.2 Measures

All items were adopted from previous studies, including perfectionism, job satisfaction, organizational commitment, and health problems. At the same time, the wordings were slightly modified to fit our research context. A six-point scale ranging

from "strongly disagree" (=1) to "strongly agree" (=6) was used for all items except for the demographics of the participants. The examination of the reliability of the measures showed that the Cronbach's alpha statistics of all the constructs were greater than the recommended threshold value of 0.7 (0.8 for perfectionism, 0.84 for job satisfaction, 0.89 for organization commitment, and 0.87 for health problems, respectively).

Perfectionism was measured using a three-item perfectionism scale adapted from Hewitt & Flett (1993), with items assessing the self-oriented, other-oriented, and socially prescribed dimensions. An example item is: "I have high expectations of the people who are important to me."

Job satisfaction was measured using an eight-item scale developed by Warr & Inceoglu (2012). This instrument focused on satisfaction with the work itself, pay, and relationships with colleagues and supervisors, including intrinsic and extrinsic satisfaction. An example item is: "I am satisfied with the amount of responsibility I am given."

Organizational commitment included three dimensions: belief in the company's values and goals, willingness to make an effort, and willingness to remain in the profession, and was measured by an eleven-item scale adapted from Mowday et al. (1979), including three dimensions (i.e., affective, normative, and continuance). An example item is: "This organization inspires the very best in me in the way of job performance."

Health problems were measured using a nine-item scale adapted from Andrea et al. (2004), including two dimensions of physical and mental problems. Andrea et al. (2004) developed the original questionnaire that used 36 items to measure mental and physical health problems. First, we considered their exploratory factor analysis, which indicated that the factor loadings of 12 items were too low. Thus, we deleted them while designing the questionnaire. Additionally, we used 24 questions to perform the pre-test; however, the factor loadings of 13 items were less than 0.7. Thus, we deleted them. Finally, a total of 11 items remained in the formal questionnaire. Subsequently, we performed a confirmatory factor analysis (CFA) using AMOS software, which suggested the factor loadings of two items were less than 0.5, so they are deleted. Example items are: "I become tired very quickly," and "When I am under pressure, I worry a lot."

Control variables. The focus of this study was on individual motivations. A one-way ANOVA and an independent t-test were used to determine which means were significantly different for the demographic variables used as control variables in the HLM analyses. The results presented in Table 2 show that position and job tenure were positively and significantly related to individual OC and health problems. Therefore, the effects of the respondents' position and job tenure were controlled in the process of hypotheses testing. Job tenure was set at six levels, ranging from one year or under (= 1) to over five years (= 6). Position was placed at six levels, staff 1 ~ 3 (= 1 ~ 3), senior (= 4), assistant manager (=5), and other (= 6).

Table 2. T-value by independent t-test or F value by ANOVA

Control variable	Dependent variable		
	Job satisfaction	Organizational commitment	Health problems
Gender	1.12	1.05	-1.08
Age	0.82	0.27	0.71
Martial	-1.03	-0.93	1.50
Education	0.68	0.50	1.46
Position	1.46	2.10^{+}	5.32***
Qualification	1.77	1.28	0.89
Job tenure	1.38	2.25*	6.84***

Note: +p < 0.1; *p < 0.05; ***p < 0001.

Source: The current study

3.3 Analytical Approach

Before testing the hypotheses, a series of confirmatory factor analyses (CFA) were carried out to assess the constructs' convergent validity (Jackson et al., 2009). Fornell & Larcker (1981) suggested that convergent validity is supported by item and construct reliability and average variance extracted (AVE). In addition, chi-square ($\chi 2$) statistics, the goodness of fit index (GFI), normed fit index (NFI), incremental fit index (IFI), Tucker–Lewis index (TLI), comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root means square residual (SRMR) were assessed to examine the fit of the conceptual models to the empirical data. Concerning most of these statistics, values of 0.90 or higher showed

an acceptable fit to the data, and with the RMSEA and SRMR 0.08 and 0.10, respectively, indicating an acceptable fit (Byrne, 2010).

The data used in this study were multilevel because the IT employees were exposed to similar environments. Thus, the ordinary least square method might not be appropriate for this context. We, therefore, adopted an HLM and focused on individual-level behaviors to test all of the hypotheses. A restricted maximum likelihood method was used to estimate the parameters of the between- and within-group variance components. Each project service team may vary in terms of its work conditions, which would impact the consistency of the scores given by the participants, which was assessed using an intra-class coefficients (ICCs) index. The proportion of variance in the ratings at the individual level was tested using the ICC1 and ICC2. Bliese (2000) stated that the ICC1 value should range from 0.05 to 0.20, and a cutoff value of 0.60 for ICC2 is recommended (Schneider et al., 1998).

4. RESULTS

4.1 Analysis Approach

Based on the procedures for the CFA mentioned above, we examined the quality of the measurement model. The initial examination of the quality of the measurement model indicated that the measurement model exhibited adequate goodness of fit. In contrast, some of the survey items exhibited inadequately low factor loadings. To ensure the reliability and internal consistency of the measures, ten of the 40 questions were removed from the data, including three items for perfectionism, two items for health problems, four items for job satisfaction, and one item for organizational commitment. Table 3 shows model fit indices of the measurement model after the item deletion process, which indicated that all the model fit indices of the measurement model were adequate, and thus, we determined that the measurement model exhibited acceptable fit (Bagozzi & Yi, 1988; Hair et al., 2010). The reliability of the remaining measures after the item deletion process was also re-examined. The results revealed that all of the Cronbach's alpha coefficients of the four constructs (ranging from 0.7 to 0.92) were larger than the recommended level of 0.7 (Table 4).

Table 3. The indices of measurement model by CFA.

	χ^2/d.f.	GFI	NFI	IFI	TLI	CFI	SRMR	RMSEA
Actual value	2.81	0.86	0.87	0.91	0.90	0.91	0.06	0.06
Acceptable value	≤3	≥ 0.8	≥ 0.8	≥ 0.9	≥ 0.9	≥ 0.9	≤ 0.08	≤ 0.08

Note: N = 489; GFI = goodness of fit index; NFI = normed fit index; IFI = incremental fit index; TLI = Tucker-Lewis index; CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual.

Source: The current study

Table 4. Descriptive statistics, reliabilities, and correlations

Variable	1	2	3	4
1. Perfectionism	**0.45**			
2. Job satisfaction	0.09**	**0.50**		
3. Organizational commitment	0.12**	0.48**	**0. 53**	
4. Health problem	0.02**	0.04**	0.04**	**0. 66**
Mean	4.26	3.90	3.91	3.50
SD	0.69	0.72	0.73	0.94
Composite reliability	0.71	0.88	0.93	0.95
AVE	0.45	0.50	0.53	0.66
Cronbach's alpha	0.70	0.84	0.92	0.91

Note: N=489 at the individual level; ** $p < .01$ (two-tailed). All square correlations are smaller than average variance extracted (in diagonal) (Hair et al., 2010).

Source: The current study

The measurement model was then assessed in terms of its convergent and discriminant validity (Fornell & Larcker, 1981; Bagozzi & Yi, 1988; Hair et al., 2010). Three criteria were used to evaluate the convergent validity of the measurement model, as follows: (i) The factor loadings of the indicators must be statistically significant and greater than 0.5; (ii) the values of composite reliability (CR) statistics must be greater than 0.7, and (iii) the values of average variance extracted (AVE) estimates must be greater than 0.5.

As shown in Table 5, all of the factor loadings (ranging from 0.58 to 0.88) were greater than 0.5 and statistically significant. In addition, to recheck the convergent validity, the Smart PLS 3 software package was used to examine the cross-factor loading values. The results showed that convergent validity was ensured, as shown in Appendix 1. Furthermore, all CR statistics (ranging from 0.71 to 0.95) were higher than 0.7, indicating adequate reliability of the measurement model. Furthermore, the AVE values ranged from 0.45 to 0.66, indicating that each construct was strongly related to its set of related indicators except for the AVE value of perfectionism (0.45). However, it was only slightly lower than the criteria. Although the AVE value of perfectionism was less than 0.5, its CR statistic was greater than 0.6 (see Table 5), which is considered adequate for establishing good convergent validity (Fornell & Larcker, 1981). These results indicate that the measurement model exhibited adequate convergent validity.

Finally, the discriminant validity of the measurement model was checked. As presented in Table 4, all square correlations between constructs (ranging from 0.02 to 0.48) were smaller than the corresponding of the AVE estimates (ranging from 0.67 to 0.81). The results indicated that the four constructs were strongly related to their respective indicators as compared to the other constructs in the model (Fornell & Larcker, 1981), indicating that our measurement model exhibited adequate discriminant validity.

Table 5. Measurement items and results by CFA.

Construct	Item	Factor loading	Reference
Perfectionism	works full potential all time	0.75	Hewitt & Flett (1993)
	better I am expected to do	0.67	
	high expectations	0.58	
Job satisfaction	the amount of responsibility	0.68	Warr & Inceoglu (2012)
	physical work conditions	0.74	
	job security	0.64	
	recognition I get for good work	0.68	
	rate of pay	0.67	
	relations between management and employees	0.80	
	the way of managed	0.73	
Organizational commitment	put extra efforts	0.83	Mowday et al. (1979)
	a great organization to work for	0.74	
	my values similar to the organization's value	0.80	
	proud to tell others of my organization	0.73	
	accept any type of job assignment	0.68	
	glad to choose this organization	0.69	
	the best of all possible organizations	0.74	
	inspires the best way in my job	0.69	
	difficult to agree to this organization (reverse)	0.61	
	care about the fate of this organization (reverse)	0.70	
	correct decision work for this organization	0.84	
Health problems	feel tired	0.78	Andrea et al. (2004)
	physically in bad condition	0.88	
	tired very quickly	0.88	
	no dire to do anything	0.74	
	worry a lot	0.68	
	always worrying	0.82	
	been a worrier all life	0.84	
	been worrying about things	0.86	
	can't stop worrying	0.80	

Note: All items are significantly at $p < 0.001$.

Source: The current study

4.2 Hypotheses Testing

The hypotheses testing followed Galletta et al. (2013) procedures. The null models (without predictors) were estimated, excluding predictors and moderators. As such, we only considered the moderating and dependent variables. These models provide information on the quantity of variance associated with individuals, both between- and within-groups. The results showed significant within-group variations in job satisfaction ($\tau = 0.12$, $\chi^2(81) = 147.12$, $p < 0.001$, ICC1 = 0.15, ICC2 = 0.94), for organizational commitment ($\tau = 0.13$, $\chi^2(81) = 151.16$, $p < 0.001$, ICC1 = 0.16, ICC2 = 0.94) and health problems ($\tau = 0.06$, $\chi^2(81) = 113.35$, $p < 0.01$, ICC1 = 0.06, ICC2 = 0.85), revealing a 15%, 16%, and 6% between-group variance in job satisfaction, organizational commitment, and health problems, respectively (Table 6). The results suggested a nesting effect in our data and supported the view that HLM analysis was better than other approaches for the context examined in this study. Additionally, in hypotheses testing procedures, the predictors were centered on the grand mean of the sample of IT employees, where random effects (τ) in HLM occurred for intercepts and all predictors.

Table 6. The results of ICC1, ICC2, and RWG

	τ	χ^2 (81)	P value	ICC1	ICC2	RWG (a)
Job satisfaction	0.12	147.12	0.001	0.15	0.94	0.7 – 0.99
Organizational commitment	0.13	151.16	0.001	0.16	0.94	0.87 – 0.99
Health problems	0.06	113.35	0.01	0.06	0.85	0.71 – 0.98
Cutoff value				*≥ 0.02*	*≥ 0.7*	*≥ 0.7*

Note: (a) Groups = 82.

Source: The current study

Direct effect at individual level. H1a, H1b, and H1c postulated that perfectionism would be positively related to job satisfaction, health problems, and organizational commitment, respectively. After controlling for tenure and professional qualifications, the HLM analysis provided support for H1a (r_{30} = 0.33, p < 0.001), H1b (r_{30} = 0.23, p < 0.01) and H1c (r_{30} = 0.36, p < 0.001). Therefore, as shown in Figure 2, H1a, H1b, and H1c were supported.

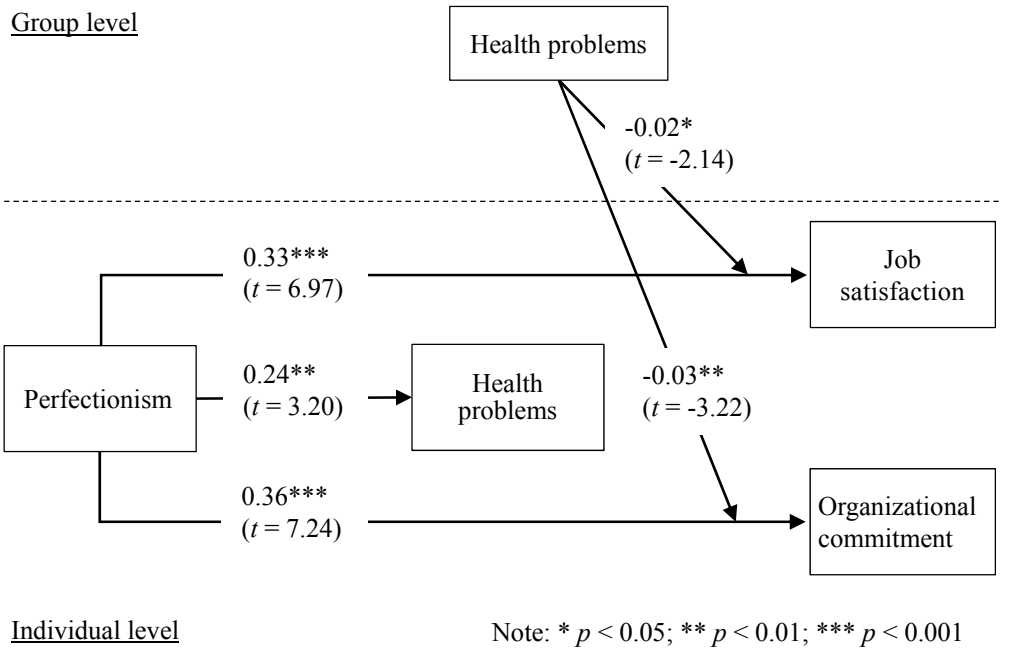

Figure 2. Results of the hypothesis analysis.

Source: The current study

Moderation effects at group level. We posited that the group of IT employees' health problems might significantly moderate the relationships between perfectionism-satisfaction and perfectionism-commitment. A simple slope analysis was used, following Aiken and West's (1991) recommendations. The results showed that (i) perfectionism × health problems significantly decreased IT employees' job satisfaction (r_{31} = -0.02, p < 0.05) and perfectionism × health problems significantly decreased IT employees' organizational commitment (r_{31} = -0.03, p < 0.01). As shown in Table 7 and Figure 2, the interaction was supported (H2a and H2b)

Table 7. The main effects and moderating effects of health problems using HLM

Variable	Dependent variable						
	HP	JSAT	JSAT	JSAT	OC	OC	OC
Intercept (r_{00})	3.13***	4.05***	2.60***	2.56***	4.01***	2.43***	2.39***
Group level							
Tenure (r_{01})				-0.07			-0.09
Position (r_{02})				0.09*			0.10
Perfectionism (r_{03})				0.04			0.05***
PERF × HP (r_{04})				-0.03			0.03*
Individual level							
Tenure (r_{10})	0.06	-0.03	-0.02	-0.02	-0.02	-0.01	-0.01
Position (r_{20})	0.07	-0.01	-0.01	-0.01	-0.01	-0.01	-0.003
Perfectionism (r_{30})	0.24**	0.33***	0.33***	0.32***	0.36***	0.36***	0.35***
PERF×HP (r_{31})			-0.02*	-0.02*		-0.03**	-0.03**

Note: n = 489; * p < 0.05; ** p < 0.01; *** p < 0 .001. PERF = Perfectionism; JSAT = Job satisfaction; HP = Health problems; OC = Organizational commitment.

Source: The current study

5. DISCUSSION AND IMPLICATIONS

5.1 Research results and implications

The results of this study allow us to better understand and evaluate the nature of the relationships among the perfectionism-behavior variables related to IT employees in professional service firms. The perfectionism-satisfaction and perfectionism-commitment relationships were moderated by the groups' health problems, as shown in Table 7. The moderating role of health problems was well supported by the empirical evidence presented in this study. The findings showed that IT employees' health problems reduce the positive relationships between perfectionism-job satisfaction (H2a) and perfectionism-organizational commitment (H2b). The findings highlight the importance for managers to consider the risk factors (i.e., mental health and physical health) in order to buffer the negative impacts that can occur concerning job satisfaction and organizational commitment when IT employees are in the service provision process. Thus, it is essential to encourage managers to support IT employees that may foster health-enhancing behavior. This will improve service

quality for clients/customers while creating a healthy workplace environment.

Regarding the examination of the direct effects, the results showed that the impact of perfectionism on health problems does not benefit IT employees (H1b). This implies that if an employee has self-doubts about completing a specific professional service task, this is likely to impair his/her health confidence or efficiency. In such cases, employees tend to establish ambitious goals, and a lack of supervisor or colleague support may cause them to experience heavy project task burdens. Accordingly, managers should establish and provide some assistance to their subordinates in order to improve professional service quality. For example, they can design a useful program that enhances self-regulation among their employees, assign an equal distribution of workload that meets employee preferences, and continue training/education programs that enhance the professional abilities of their staff. Additionally, managers should work to provide more a favorable workplace environment or programs/information to improve self-health management, thus allowing staff to balance the work-life domains, which will, in turn, lead to high satisfaction, identification, and loyalty in the workplace.

The findings showed that the effects of perfectionism on job satisfaction (H1a) and organizational commitment (H1c) are beneficial to IT employees, which perhaps implies that perfectionism can help them with achieving somewhat individual goals or with meeting their psychological needs. Managers may further strengthen IT employees' professional capabilities to determine more detailed features of IT service practices. Perhaps giving IT employees an adequate level of challenge might increase the degree of satisfaction felt by highly talented IT employees since this will help them improve their level of expertise and, in turn, increase their loyalty. This will make them more have willing to expend extra time or effort into improving the professional service quality.

In conclusion, adequate levels of perfectionism can increase/decrease the positive/negative effects of IT employee behavior, which is consistent with the findings of previous studies (e.g., Wittenberg & Norcross, 2001; Træen et al., 2019). The findings emphasize the importance of exploring the relationships between perfectionism and employee well-being and health problems. Consequently, developing a complete understanding of employee behavior is vital to managers in the professional services sector.

5.2 Limitations and Future Directions

This study has several limitations that provide directions for future research. First, this study was limited to Taiwanese CPA firms, using a sample of IT employees primarily responsible for general IT-support-related tasks in various projects. Thus, the findings may not apply to a broader range of settings. These employees may focus more on accounting, finance, governance, IT-related research, or various law issues than on accounting information systems issues. More diverse samples from IT employees representing different professional areas are thus encouraged to validate this study's research model in various contexts. Second, all of the measures used in this study were self-reported by the respondents, which may raise the possibility of common method variance (Podsakoff et al., 2003). Therefore, to avoid sampling bias in the data collection process, more conservative research procedures should be followed. Third, perfectionism among IT employees is a significant antecedent of job satisfaction, organizational commitment, and health problems. The concept of perfectionism was only assessed using the respondents' intrinsic and extrinsic motivations in this study. Future studies are thus suggested to investigate further the effects of different types of IT employee characteristics (i.e., positive-negative affectivity, individualism, collectivism, and locus of control). Also, future research can explore other possible moderators in this context, such as work experience, performance-oriented goals, learning-oriented goals, relationship quality, and so forth. The ability to identify the key variables and the intrinsic and extrinsic motivations for perfectionism in the workplace is vital in the specific context of the professional service industry. The proposed model used in this study could also be applied to examine similar issues among lawyers, doctors, nurses, etc. Future research can refer to our findings to propose research subjects intended to enrich valuable individual characteristics in other professional service fields. Fourth, after the pre-test and CFA procedures, 9 out of the 36 original items developed by Andrea et al. (2004) were adopted to measure the health problems construct. While we clearly justified our reasons for adopting only nine items from the original scale, these nine items may not have adequately represented the concept of health problems in other research contexts. Thus, in terms of concerns about health problems, we suggest that future studies use different samples from various sectors to understanding information related to

marketing in the IT professional field. Fifth, most of the respondents of this study were lower-level employees and not upper-echelon managers or supervisors. Because upper-echelon managers' or supervisors' knowledge, skills, or values may differ from those of lower-level employees, the findings reported in this study may not appropriately apply to upper-echelon managers or supervisors. Future research that extends the investigation using data collected from upper-echelon managers or supervisors is encouraged. Finally, data related to the job characteristics of IT employees (i.e., programmers, analysts, web designers, network specialists, database administrators) were not collected. Therefore, adopting the SDT may not have been the best choice when investigating similar research issues in other contexts in the IT/IS industry. Future studies can conduct a deeper or more holistic analysis by including different theories, presented in Table 1 above.

6. CONCLUSION

The findings of this study contribute to the SDT literature and organizational management in professional service firms. Although perfectionism has received growing scholarly attention as it relates to health problems and job satisfaction, few studies have linked individual intrinsic and extrinsic motivations to organizational commitment. From the perspective of work motivation, the SDT was used in the present work to examine IT employees' work-related well-being. It was found that the levels of job satisfaction and organizational commitment are associated with perfectionism and health problems, which are in line with the results of previous research (e.g., Ocampo et al., 2020). Perfectionism does not always produce a destructive outcome in the workplace, which is only one possible risk factor related to perfectionism. It provides IT employees with the opportunity to listen to their inner feelings and gain a sense of responsibility while simultaneously re-examining or analyzing a task through the alternative perspective of interaction or communication with others on a project team. Positive perfectionism can appropriately improve employees' job satisfaction and organizational commitment and is a crucial factor related to the ability of employees to enhance their self-regulated capabilities and raise their status and position. It is hoped that these findings will enable future researchers to better understand the role that perfectionism plays in professional service firms.

REFERENCES

Ahmed, S., Taskin, N., Pauleen, D. J. and Parker, J., 2017, "Motivating Information Technology Professionals: The case of New Zealand," **Australasian Journal of Information Systems**, Vol. 21, DOI: https://doi.org/10.3127/ajis.v21i0.1421

Aiken, L. S. and West, S. G., 1991, **Multiple Regression: Testing and Interpreting Interactions**, Califorinia: SAGE Publications, Inc.

Akman, I. and Turhan, C., 2018, "Investigation of Employers' Performance Expectations for New IT Graduates in Individual and Team Work Settings for Software Development," I**nformation Technology & People**, Vol. 31 No. 1, 199-214.

Andrea, H., Beurskens, A. J. H. M., Kant, I. J., Davey, G. C. L., Field, A. P. and van Schayck, C. P., 2004, "The Relation between Pathological Worrying and Ftigue in a Working Population," **Journal of Psychosomatic Research**, Vol. 57, No. 4, 399-407.

Benevene, P., Dal Corso, L., De Carlo, A., Falco, A., Carluccio, F. and Vecina, M. L., 2018, "Ethical Leadership as Antecedent of Job Satisfaction, Affective Organizational Commitment and Intention to Stay among Volunteers of Non-profit Organizations," **Frontiers in Psychology**, Vol. 9, 2069.

Bliese, P. D., 2000, "Within-group Agreement, Non-independence, and Reliability: Implications for Data Aggregation and Analysis" in Klein, K. J. and Kozlowski S. W. J. (eds.), **Multilevel Theory, Research, and Methods in Organizations: Foundations, Extensions, and New Directions**, San Francisco, CA:Jossey-Bass, 349-381.

Bagozzi, R. P. and Yi, Y., 1988, "On the Evaluation of Structural Equation Models," **Journal of the Academy of Marketing Science**, Vol. 16, No. 1, 74-94.

Braun, A., Weiss, S. and Kiel, E., 2020, "How to Cope with Stress? The Stress-inducing Cognitions of Teacher Trainees and Resulting Implications for Teacher Education," **European Journal of Teacher Education**, Vol. 43, No. 2, 191-209.

Brooks, S. and Califf, C., 2017, "Social Media-induced Technostress: Its Impact on the Job Performance of IT Professionals and the Moderating Role of Job Characteristics," **Computer Networks**, Vol. 114, 143-153.

Burke, R. J., 1999, "Workaholism and Extra-work Satisfactions," **The International Journal of Organizational Analysis**, Vol. 7, No. 4, 352-364.

Byrne, B. M., 2010, **Multivariate Applications Series. Structural Equation Modeling with AMOS: Basic Concepts, Applications, and Programming**, 2nd, New York: Routledge/ Taylor & Francis Group.

Chang, H. T., Chou, Y. J., Liou, J. W. and Tu, Y. T., 2016, "The Effects of Perfectionism on

Innovative Behavior and Job Burnout: Team Workplace Friendship as a Moderator," **Personality and Individual Differences**, Vol. 96, 260-265.

Dobni, D., Zerbe, W. and Ritchie, J. B., 1997, "Enhancing Service Personnel Effectiveness Through the Use of Behavioral Repertoires," **Journal of Services Marketing**, Vol. 11, No. 6, 427-445.

Flett, G. L., Hewitt, P. L. and Hallett, C. J., 1995, "Perfectionism and Job Stress in Teachers," **Canadian Journal of School Psychology**, Vol. 11, No.1, 32-42.

Fornell, C. and Larcker, D. F., 1981, "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error," **Journal of Marketing Research**, Vol. 18, No. 1, 39-50.

França, C., Da Silva, F. Q. and Sharp, H., 2020, "Motivation and Satisfaction of Software Engineers," **IEEE Transactions on Software Engineering**, Vol. 46, No. 2, 118-140.

Frost, R. O., Marten, P., Lahart, C. and Rosenblate, R., 1990, "The Dimensions of Perfectionism," **Cognitive Therapy and Research**, Vol. 14, No. 5, 449-468.

Galletta, M., Portoghese, I., Battistelli, A. and Leiter, M. P., 2013, "The Roles of Unit Leadership and Nurse-physician Collaboration on Nursing Turnover Intention," **Journal of Advanced Nursing**, Vol. 69, No. 8, 1771-1784.

Gagné, M. and Deci, E. L., 2005, "Self-determination Theory and Work Motivation," **Journal of Organizational behavior**, Vol. 26, No. 4, 331-362.

Garinger, L. M., Chow, G. M. and Luzzeri, M., 2018, "The Effect of Perceived Stress and Specialization on the Relationship between Perfectionism and Burnout in Collegiate Athletes," **Anxiety, Stress and Coping**, Vol. 31, No. 6, 714-727.

Gillet N., Fouquereau E., Lafrenière, Marc-André K., and Huyghebaert T., 2016, "Examining the Roles of Work Autonomous and Controlled Motivation on Satisfaction and Anxiety as a Function of Role Ambiguity," **The Journal of Psychology**, Vol. 150, No. 5, 644-665.

Gomez-Baya, D. and Lucia-Casademunt, A. M., 2018, "A Self-determination Theory Approach to Health and Well-being in the Workplace: Results from the Sixth European Working Conditions Survey in Spain," **Journal of Applied Social Psychology**, Vol. 48, No. 5, 269-283.

Hair, J. F., Anderson, R. E., Babin, B. J. and Black, W. C., 2010, **Multivariate Data Analysis: A Global Perspective**, 7th, Upper Saddle River, NJ: Pearson.

Harden, G., Boakye, K. G. and Ryan, S., 2018, "Turnover Intention of Technology Professionals: A Social Exchange Theory Perspective," **Journal of Computer Information Systems**, Vol. 58, No. 4, 291-300.

Harvey, B., Milyavskaya, M., Hope, N., Powers, T. A., Saffran, M. and Koestner, R., 2015, "Affect Variation across Days of the Week: Influences of Perfectionism and Academic Motivation," **Motivation and Emotion**, Vol. 39, No. 4, 521-530.

Hewitt, P. L. and Flett, G. L., 1993, "Dimensions of Perfectionism, Daily Stress, and Depression: A Test of the Specific Vulnerability Hypothesis," **Journal of Abnormal Psychology**, Vol. 102, No. 1, 58-65.

Hewitt, P. L., Flett, G. L. and Ediger, E., 1996, "Perfectionism and Depression: Longitudinal Assessment of a Specific Vulnerability Hypothesis," **Journal of Abnormal Psychology**, Vol. 105, No. 2, 276-280.

Hsieh, Y. H. and Wang, M. L., 2012, "The Moderating Role of Personality in HRM-from the Influence of Job Stress on Job Burnout Perspective," **International Management Review**, Vol. 8, No. 2, 5-18.

Hsu, J. S. C., Shih, S. P. and Li, Y., 2017, "The mediating Effects of In-role and Extra-role Behaviors on the Relationship between Control and Software-project Performance," **International Journal of Project Management**, Vol. 35, No. 8, 1524-1536.

Hu, B., Hou, Z., Mak, M. C. K., Xu, S. L., Yang, X., Hu, T., Qiu, Y. and Wen, Y., 2019, "Work Engagement, Tenure, and External Opportunities Moderate Perceived High-performance Work Systems and Affective Commitment," **Social Behavior and Personality: An International Journal**, Vol. 47, No. 5, 1-16.

Hu, K. H., Chen, F. H. and Tzeng, G. H., 2018, "CPA Firm's Cloud Auditing Provider for Performance Evaluation and Improvement: An Empirical Case of China," **Technological and Economic Development of Economy**, Vol. 24, No. 6, 2338-2373.

Jackson, D. L., Gillaspy, Jr. J. A. and Purc-Stephenson, R., 2009, "Reporting Practices in Confirmatory Factor Analysis: An Overview and Some Recommendations," **Psychological Methods**, Vol. 14, No. 1, 6-23.

Keramat, S. A., Alam, K., Gow, J. and Biddle, S. J., 2020, "Obesity, Long-term Health Problems, and Workplace Satisfaction: A Longitudinal Study of Australian Workers," **Journal of Community Health**, Vol. 45, No. 2, 288-300.

Levin, E., Quach, T. N. and Thaichon, P., 2019, "Enhancing Client-agency Relationship Quality in the Advertising Industry-an Application of Project Management," **Journal of Business & Industrial Marketing**, Vol. 34, No. 2, 463-473.

Li, Y., Lan, J. and Ju, C., 2015, "Achievement Motivation and Attributional Style as Mediators between Perfectionism and Subjective Well-being in Chinese University Students," **Personality and Individual Differences**, Vol. 79, 146-151.

Lin, T. C., Wang, Y. S. and Wang, Y. Y., 2013, "Exploring the Determinants of IS Developers'

Behavioural Intention to Learn Business Skills," **Behaviour & Information Technology**, Vol. 32, No. 11, 1125-1138.

Lorente Prieto, L., Salanova Soria, M., Martínez Martínez, I. and Schaufeli, W., 2008, "Extension of the Job Demands Resources Model in the Prediction of Burnout and Engagement among Teachers Over Time," **Psicothema**, Vol. 20, No. 3, 354-360.

Maslach, C., Schaufeli, W. B. and Leiter, M. P., 2001, "Job Burnout," **Annual Review of Psychology**, Vol. 52, No. 1, 397-422.

Meyer, J. P. and Allen, N. J., 1991, "A three Component Conceptualization of Organization Commitment," **Human Resource Management Review**, Vol. 1, No. 1, 61-89.

Miquelon, P., Vallerand, R. J., Grouzet, F. M. and Cardinal, G., 2005, "Perfectionism, Academic Motivation, and Psychological Adjustment: An Integrative Model," **Personality and Social Psychology Bulletin**, Vol. 31, No. 7, 913-924.

Molnar, D. S., Reker, D. L., Culp, N. A., Sadava, S. W. and DeCourville, N. H., 2006, "A Mediated Model of Perfectionism, Affect, and Physical Health," **Journal of Research in Personality**, Vol. 40, No. 5, 482-500.

Molnar, D. S., Sadava, S. W., Flett, G. L. and Colautti, J., 2012, "Perfectionism and Health: A Mediational Analysis of the Roles of Stress, Social Support and Health-related Behaviours," **Psychology & Health**, Vol. 27, No. 7, 846-864.

Moon, T. W., Hur, W. M. and Hyun, S. S., 2019, "How Service Employees' Work Motivations Lead to Job Performance: The Role of Service Employees' Job Creativity and Customer Orientation," **Current Psychology**, Vol. 38, No. 2, 517-532.

Mouratidis, A. and Michou, A., 2011, "Perfectionism, Self-determined Motivation, and Coping among Adolescent Athletes," **Psychology of Sport and Exercise**, Vol. 12, No. 4, 355-367.

Mowday, R. T., Steers, R. M. and Porter, L. W., 1979, "The Measurement of Organizational Commitment," **Journal of Vocational Behavior**, Vol. 14, No.2, 224-247.

Munro, K. M., 2008, "Continuing Professional Development and the Charity Paradigm: Interrelated Individual, Collective and Organizational Issues about Continuing Professional Development," **Nurse Education Today**, Vol. 28, No. 8, 953-961.

Ocampo, A. C. G., Wang, L., Kiazad, K., Restubog, S. L. D. and Ashkanasy, N. M., 2020, "The Relentless Pursuit of Perfectionism: A Review of Perfectionism in the Workplace and an Agenda for Future Research," **Journal of Organizational Behavior**, Vol. 41, No. 2, 144-168.

Parker, W. D., 1997, "An Empirical Typology of Perfectionism in Academically Talented Children," **American Educational Research Journal**, Vol. 34, No. 3, 545-562.

Pawlowski, S. D., Kaganer, E. A. and Cater III, J. J., 2007, "Focusing the Research Agenda on Burnout in IT: Social Representations of Burnout in the Profession," **European Journal of Information Systems**, Vol. 16, No. 5, 612-627.

Pflügler, C., Wiesche, M., Becker, N. and Krcmar, H., 2018, "Strategies for Retaining Key IT Professionals," **MIS Quarterly Executive**, Vol. 17, No. 4, 297-314.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y. and Podsakoff, N. P., 2003, "Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies," **Journal of Applied Psychology**, Vol. 88, No. 5, 879-903.

Ren, F., Zhang, Q. and Wei, X., 2021, "Work Autonomous and Controlled Motivation on Chinese Employees' Work Performance and Innovative Work Behaviour: The Moderating Role of Financial Stress," **Frontiers in Psychology**, Vol. 12, 676063.

Ryan, R. M. and Deci, E. L., 2000, "Self-determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-being," **American Psychologist**, Vol. 55, No. 1, 68-78.

Schneider, B., White, S. S. and Paul, M. C., 1998, "Linking Service Climate and Customer Perceptions of Service Quality: Test of Causal Model," **Journal of Applied Psychology**, Vol. 83, No. 2, 150-163.

Sheldon, K. M. and Prentice, M., 2019, "Self-determination Theory as a Foundation for Personality Researchers," **Journal of Personality**, Vol. 87, No. 1, 5-14.

Sigahi, T. F., Kawasaki, B. C., Bolis, I. and Morioka, S. N., 2021, "A Systematic Review on the Impacts of Covid-19 on Work: Contributions and a Path Forward from the Perspectives of Ergonomics and Psychodynamics of Work," **Human Factors and Ergonomics in Manufacturing & Service Industries**, Vol. 31, No. 4, 375-388.

Stoeber, J., 2012, "The 2 × 2 Model of Perfectionism: A Critical Comment and Some Suggestions," **Personality and Individual Differences**, Vol. 53, No. 5, 541-545.

Stoeber, J. and Damian, L. E., 2016, "Perfectionism in Employees: Work Engagement, Workaholism, and Burnout" in Sirois F. M. and Molnar D. S. (eds.), Perfectionism, Health, and Well-being, 1st, New York, NY: Springer, 265-283.

Suárez-Albanchez, J., Blazquez-Resino, J. J., Gutierrez-Broncano, S. and Jimenez-Estevez, P., 2021, "Occupational Health and Safety, Organisational Commitment, and Turnover Intention in the Spanish IT Consultancy Sector," **International Journal of Environmental Research and Public Health**, Vol. 18, No. 11, 5658.

Suh, A. and Lee, J., 2017, "Understanding Teleworkers' Technostress and its Influence on Job Satisfaction," **Internet Research**, Vol. 27, No. 1, 140-159.

Tomo, A., Mangia, G. and Consiglio, S., 2020, "Information Systems and Information

Technologies as Enablers of Innovation and Knowledge Creation and Sharing in Professional Service Firms," **Technology Analysis & Strategic Management**, Vol. 32, No. 9, 1082-1097.

Tarafdar, M., Cooper, C. L. and Stich, J. F., 2019, "The Technostress Trifecta-techno Eustress, Techno Distress and Design: Theoretical Directions and an Agenda for Research," **Information Systems Journal**, Vol. 29, No. 1, 6-42.

Træen, B., Finstad, K. S. and Røysamb, E., 2021, "Perfect Riders: Personality, Perfectionism, and Mental Health in Norwegian Competition Riders," **Journal of Equine Veterinary Science**, Vol. 75, 82-89.

Toskin, K. and McCarthy, R. V., 2021, "Information Technology Work Value Differences," **Journal of Computer Information Systems**, Vol. 61, No. 4, 305-313.

Van den Broeck, A., Schreurs, B., De Witte, H., Vansteenkiste, M., Germeys, F. and Schaufeli, W., 2011, "Understanding Workaholics' Motivations: A Self-determination Perspective," **Applied Psychology**, Vol. 60, No. 4, 600-621.

Van den Broeck, A., Sulea, C., Vander Elst, T., Fischmann, G., Iliescu, D. and De Witte, H., 2014, "The Mediating Role of Psychological Needs in the Relation between Qualitative Job Insecurity and Counterproductive Work Behavior," **Career Development International**, Vol. 19, No. 5, 526-547.

Van der Vaart, L., 2021, "The Performance Measurement Conundrum: Construct Validity of the Individual Work Performance Questionnaire in South Africa," **South African Journal of Economic and Management Sciences**, Vol. 24, No.1, a3581.

Von Nordenflycht, A., 2010, "What is a Professional Service Firm? Toward a Theory and Taxonomy of Knowledge-intensive Firms," **Academy of management Review**, Vol. 35, No. 1, 155-174.

Walsh, K., 2016, "Applying Career Concepts to Strengthen the Work-attitudes of Service Professionals," **The Service Industries Journal**, Vol. 36, No. 1-2, 58-79.

Wang, G., Liu, X. and Liu, Y., 2019, "Role Overload, Knowledge Acquisition and Job Satisfaction: An Ambidexterity Perspective on Boundary-spanning Activities of IT Employees," **The International Journal of Human Resource Management**, Vol. 30, No. 4, 728-757.

Wang, X., Clay, P. F. and Forsgren, N., 2015, "Encouraging Knowledge Contribution in IT Support: Social Context and the Differential Effects of Motivation Type," **Journal of Knowledge Management**, Vol. 19, No. 2, 315-333.

Warr, P. and Inceoglu, I., 2012, "Job Engagement, Job Satisfaction, and Contrasting Associations with Person-job Fit," **Journal of Occupational Health Psychology**, Vol.

17, No. 2, 129-138.

Westgaard, R. H. and Winkel, J., 2011, "Occupational Musculoskeletal and Mental Health: Significance of Rationalization and Opportunities to Create Sustainable Production Systems-A systematic Review," **Applied Ergonomics**, Vol. 42, No. 2, 261-296.

Wittenberg, K. J. and Norcross, J. C., 2001, "Practitioner Perfectionism: Relationship to Ambiguity Tolerance and Work Satisfaction," **Journal of Clinical Psychology**, Vol. 57, No. 12, 1543-1550.

Yalabik, Z. Y., Swart, J., Kinnie, N. and Van Rossenberg, Y., 2017, "Multiple Foci of Commitment and Intention to Quit in Knowledge-intensive Organizations (KIOs): What Makes Professionals Leave?" **The International Journal of Human Resource Management**, Vol. 28, No. 2, 417-447.

Zheng, J., Liu, H. and Zhou, J., 2020, "High-performance Work Systems and Open Innovation: Moderating Role of IT Capability," **Industrial Management & Data Systems**, Vol. 120, No. 8, 1441-1457.

Appendix 1. Cross-factor loading by Smart PLS 3 software package.

	Perfectionism	PHP	MHP	SAT1	SAT2	OC1	OC2	OC3
SOP1	**0.851**	-0.014	0.171	0.26	0.241	0.316	0.29	0.286
SPP1	**0.782**	0.087	0.125	0.21	0.144	0.222	0.213	0.259
OOP1	**0.738**	0.041	0.221	0.185	0.185	0.174	0.218	0.208
PHP1	0.085	**0.844**	0.482	-0.278	-0.157	-0.233	-0.219	-0.177
PHP2	0.087	**0.903**	0.516	-0.252	-0.143	-0.19	-0.138	-0.155
PHP3	0.041	**0.908**	0.526	-0.212	-0.145	-0.221	-0.128	-0.123
PHP4	-0.077	**0.816**	0.445	-0.251	-0.218	-0.289	-0.186	-0.194
MHP1	0.236	0.56	**0.764**	-0.12	-0.063	-0.106	-0.062	-0.039
MHP2	0.193	0.455	**0.866**	-0.111	-0.055	-0.095	-0.051	-0.068
MHP3	0.127	0.454	**0.86**	-0.143	-0.026	-0.117	-0.026	-0.076
MHP4	0.145	0.496	**0.881**	-0.121	-0.093	-0.13	-0.069	-0.107
MHP5	0.212	0.429	**0.845**	-0.092	-0.047	-0.074	-0.038	-0.048
SAT11	0.317	-0.272	-0.125	**0.781**	0.382	0.525	0.473	0.484
SAT12	0.195	-0.288	-0.121	**0.829**	0.455	0.546	0.511	0.548
SAT13	0.174	-0.138	-0.092	**0.795**	0.598	0.435	0.408	0.477
SAT21	0.287	-0.072	-0.047	0.548	**0.776**	0.434	0.413	0.473
SAT22	0.138	-0.126	-0.013	0.385	**0.78**	0.362	0.392	0.351
SAT23	0.214	-0.216	-0.051	0.488	**0.852**	0.511	0.446	0.481
SAT24	0.135	-0.187	-0.102	0.501	**0.786**	0.535	0.537	0.525
OC11	0.227	-0.216	-0.058	0.488	0.433	**0.813**	0.554	0.617
OC12	0.24	-0.25	-0.12	0.559	0.509	**0.878**	0.654	0.655
OC13	0.199	-0.282	-0.13	0.49	0.485	**0.803**	0.649	0.624
OC14	0.359	-0.146	-0.104	0.542	0.508	**0.848**	0.664	0.654
OC21	0.311	-0.19	-0.034	0.453	0.414	0.662	**0.781**	0.546
OC22	0.209	-0.121	-0.058	0.435	0.47	0.579	**0.802**	0.62
OC23	0.232	-0.155	-0.05	0.516	0.482	0.601	**0.854**	0.648
OC31	0.258	-0.104	-0.073	0.441	0.402	0.571	0.612	**0.788**
OC32	0.166	-0.137	-0.046	0.42	0.493	0.532	0.506	**0.714**
OC33	0.264	-0.148	-0.059	0.509	0.424	0.619	0.527	**0.787**
OC34	0.31	-0.192	-0.075	0.6	0.508	0.683	0.697	**0.87**

Note: SOP: self-oriented perfectionism; SPP: socially prescribed perfectionism; OOP: other-oriented perfectionism; PHP: physical health problems; MHP: mental health problems; SAT1: internal/external satisfaction; SAT2: relationship satisfaction; OC1: affective commitment; OC2: normative commitment; OC3: continuance commitment.

Source: The current study

Biographies

Wei-Tsong Wang

Wei-Tsong Wang received his Ph.D. in Information Science from the State University of New York at Albany, USA. He is currently a professor at the NCKU of Department of Industry and Information Management. His research interests include e-commerce, e-learning, game-based learning, and knowledge management. His works have appeared in journals such as Computers and Education, Information and Management, Decision Sciences, Decision Support Systems, among others.

Email: wtwang@mail.ncku.edu.tw

Ying-Lien Lin

Ying-Lien Lin received her Ph.D. in Industrial and Information Management from the National Cheng Kung University at Tainan, Taiwan. Currently, she is a research assistant at the Department of Industry and Information Management, NCKU. Her current research interests include e-learning, knowledge management, and project management. Her works have appeared in Educational Technology & Society, Frontiers in Psychology, International Journal of Project Management, and others.

Email: r38021019@gs.ncku.edu.tw